forming an amorphous semiconductor film over a substrate having an insulating surface;

adding a solution including a catalyst material in contact with said amorphous semiconductor film, said catalyst material accelerating crystallization of said amorphous semiconductor film;

first heating said amorphous semiconductor film to crystallize said amorphous semiconductor film;

irradiating the heated semiconductor film with a light to proceed further crystallization of the heated semiconductor film; and

reducing defects in the irradiated semiconductor film by second heating at a temperature in a range from 450 to 750°C.

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31. (Amended) A method according to claim 24 wherein said light momentarily fuses a surface of said semiconductor film in the irradiating step.

32. (Amended) A method of fabricating a semiconductor device comprising steps of:

forming an amorphous semiconductor film over a substrate having an insulating surface;

selectively adding a solution including a catalyst material in contact with a first portion of said amorphous semiconductor film while said solution is not added to a second portion of said amorphous semiconductor film, said catalyst material accelerating crystallization of said amorphous semiconductor film;

first heating said amorphous semiconductor film so that crystal growth proceeds from said first portion to said second portion in a lateral direction with respect to said insulating surface;

irradiating the heated semiconductor film with a light to proceed further crystallization of the heated semiconductor film; and

reducing defects in the irradiated semiconductor film by second heating said at a temperature in a range from 450 to 750°C.

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40. (Amended) A method according to claim 32 wherein said light momentarily fuses a

surface of said semiconductor film in the irradiating step.

41. (Amended) A method of fabricating a thin film transistor comprising steps of:

forming an amorphous semiconductor film over a substrate having an insulating surface;

selectively adding a solution including a catalyst material in contact with a first portion of said amorphous semiconductor film while said solution is not added to a second portion of said amorphous semiconductor film, said catalyst material accelerating crystallization of said amorphous semiconductor film;

first heating said amorphous semiconductor film so that crystal growth proceeds from said first portion to said second portion in a lateral direction with respect to said insulating surface;

irradiating the heated semiconductor film with a light to further crystallization of the heated semiconductor film;

reducing defects in the irradiated semiconductor film by second heating at a temperature in a range from 450 to 750°C; and

forming a channel forming region in said semiconductor film using said second portion of the crystallized semiconductor film.

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49. (Amended) A method according to claim 41 wherein said light momentarily fuses a surface of said semiconductor film in the irradiating step.

50. (Amended) A method of fabricating a semiconductor device comprising steps of:

forming an amorphous semiconductor film over a substrate having an insulating surface;

introducing a catalyst material in contact with said amorphous semiconductor film, said catalyst material accelerating crystallization of said amorphous semiconductor film;

first heating said amorphous semiconductor film to crystallize the amorphous semiconductor film;

irradiating the heated semiconductor film with a light to proceed further crystallization of the heated semiconductor film; and

reducing defects in the irradiated semiconductor film by second heating at a temperature in a range from 450 to 750°C; and then

patterning said semiconductor film so as to form a plurality of semiconductor islands.

55. (Amended) A method according to claim 50 wherein said light momentarily fuses a surface of said semiconductor film in the irradiating step.

56. (Amended) A method of manufacturing a semiconductor device comprising:

forming a semiconductor film comprising amorphous silicon over a substrate having an insulating surface;

adding a catalyst material into the semiconductor film;

crystallizing said semiconductor film by first heating with the catalyst material;

irradiating the crystallized semiconductor film with a pulsed excimer laser light to increase crystallinity of the semiconductor film after said first heating wherein one portion of said semiconductor film is irradiated with a plurality of shots of said pulsed excimer laser light,

reducing defects of the irradiated semiconductor film by second heating at a temperature in a range from 450 to 750°C; and

forming a gate insulating film on the semiconductor film after the second heating.

59. (Amended) A method according to claim 24 wherein said light is infrared light.

60. (Amended) A method according to claim 32 wherein said light is infrared light.

61. (Amended) A method according to claim 41 wherein said light is infrared light.

62. (Amended) A method according to claim 50 wherein said light is infrared light.

63. (Amended) A method according to claim 56 wherein said pulsed excimer light is selected

from the group consisting of KrF, XeCl, XeF and ArF.

66. (Amended) A method according to claims 24 further comprising a step of forming source, drain and LDD regions in an active layer of the semiconductor film by introducing impurities therein.

67. (Amended) A method according to claims 32 further comprising a step of forming source, drain and LDD regions in an active layer of the semiconductor film by introducing impurities therein.

68. (Amended) A method according to claims 41 further comprising a step of forming source, drain and LDD regions in an active layer of the semiconductor film by introducing impurities therein.

69. (Amended) A method according to claims 50 further comprising a step of forming source, drain and LDD regions in an active layer of the semiconductor film by introducing impurities therein.

70. (Amended) A method according to claims 56 further comprising a step of forming source, drain and LDD regions in an active layer of the semiconductor film by introducing impurities therein.

--76. A method of fabricating a semiconductor device comprising steps of:

forming a semiconductor film over a substrate having an insulating surface;

performing a laser irradiation to the semiconductor film to proceed crystallization of the semiconductor film; and then

performing a rapid thermal anneal to the semiconductor film with a strong light to proceed crystallization of the semiconductor film.

77. A method according to claim 76 wherein said laser is selected from the group consisting of KrF, XeCl, XeF, and ArF.

78. A method according to claim 76 wherein said strong light is an infrared light.

79. A method according to claim 76 further comprising a step of forming at least one semiconductor island by patterning the semiconductor film after the rapid thermal anneal.

80. A method of fabricating a semiconductor device comprising steps of:

forming a semiconductor film over a substrate having an insulating surface;

performing a heat treatment to the semiconductor film;

performing a laser irradiation to the heated semiconductor film with a laser beam; and then

performing a rapid thermal anneal to the irradiated semiconductor film with a strong light.

81. A method according to claim 80 wherein said laser is selected from the group consisting of KrF, XeCl, XeF, and ArF.

82. A method according to claim 80 wherein said strong light is an infrared light.

83. A method according to claim 80 further comprising a step of forming at least one semiconductor island by patterning the semiconductor film after the rapid thermal anneal.

84. A method of fabricating a semiconductor device comprising steps of:

forming a semiconductor film over a substrate having an insulating surface;

introducing a material for promoting crystallization of the semiconductor film to the semiconductor film;

performing a laser irradiation to the semiconductor film with a laser light; and then performing a rapid thermal anneal to the irradiated semiconductor film with a strong light.

85. A method according to claim 84 wherein said laser is selected from the group consisting of KrF, XeCl, XeF, and ArF.

86. A method according to claim 84 wherein said strong light is an infrared light.

87. A method according to claim 84 further comprising a step of forming at least one semiconductor island by patterning the semiconductor film after the rapid thermal anneal.

88. A method of fabricating a semiconductor device comprising steps of:
forming a semiconductor film over a substrate having an insulating surface;
crystallizing the semiconductor film by a laser irradiation with a laser light; and then performing a rapid thermal anneal to the irradiated semiconductor film with a strong light so as to improve crystallinity of the semiconductor film.

89. A method according to claim 88 wherein said laser is selected from the group consisting of KrF, XeCl, XeF, and ArF.

90. A method according to claim 88 wherein said strong light is an infrared light.

91. A method according to claim 88 further comprising a step of forming at least one semiconductor island by patterning the semiconductor film after the rapid thermal anneal.

92. A method according to claim 88 further comprising a step of forming source, drain, and LDD regions in the semiconductor island layer of the semiconductor film by introducing impurities therein. --